EXHIBIT S

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August 7, 2007

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RE: Francis Bianco v Weil-McLain
New York County

Dear Mr. Turner:

You have asked me to express an opinion regarding the role, if any, of Weil-McLain boiler equipment in causation of the medical condition in the above referenced litigation.

The following information has been provided by your office for our review.

1. Plaintiff's Responses to Defendant's Fourth Amended Standard Set of Interrogatories and Request for Production of Documents
2. Transcript of the Deposition of Francis Bianco, dated October 30, 2006
3. Deposition under Oral Examination of Francis Bianco, Vol. 2 , dated November 1, 2006
4. Deposition under Oral Examination of Francis Bianco, Vol. 3 , dated November 3, 2006
5. Deposition under Oral Examination of Francis Bianco, Vol. 4 , dated November 8, 2006
6. Deposition under Oral Examination of Francis Bianco, Vol. 5 , dated November 10, 2006
7. Video Examination before Trial of Francis Bianco, dated November 15, 2006
8. Medical records and reports including those of Drs.: P. Dantes, S. Eisen, B. Grundfast, U. Kapoor, B. Kappel, K. Klayman, Kurrapati, T. Mir, D. Pohl, N. Rothman, C. Saha, Z. Salimi, M. Zombek
9. Medical records of: Cardiology & Internal Medicine of Long Island, St Francis Hospital, New Island Hospital, North Shore University Hospital, Island Pulmonary Associates, Medical Oncology Associates of Long Island, Zwanger-Perisl Radiology Associates.

In June 2006, at age 68, Francis Bianco presented with shortness of breath and a right pleural effusion. Bronchoscopy and right video assisted thoracoscopy with biopsy provided the diagnosis of malignant pleural mesothelioma, epithelial type. (Pohl, Saha reports) Immunohistochemical studies supported the diagnosis. (Pohl, Saha report) During surgery he underwent decortication and partial pleurectomy. He was treated with chemotherapy and expired on November 23, 2006, four months following diagnosis. Certificate of death listed cardiopulmonary arrest and end stage mesothelioma as causes. (State of New York)

Radiologic evaluations demonstrated the right pleural effusion and a clear left lung. (Dantes, Klayman reports) Computer assisted tomography scan in October 2006 identified calcified pleural plaques. (Salimi report)

Pathologic evaluation of lung tissue for interstitial fibrosis, asbestos bodies or uncoated fiber burden was not reported.

Past medical history included coronary artery disease, diabetes mellitus, hypertension, chronic gastritis, hyperlipidemia, kidney stones, hypercholesterolemia, and hypertensive kidney disease. Mr. Bianco smoked cigarettes at a level of 53 packs/day-years. (depo pg 60-62)

Francis Bianco graduated from high school in 1955 and began a 51 year occupational worklife, the majority of which he spent working as a plumber and pipefitter. Mr. Bianco entered the workforce with substantial training as a plumber. His father was a plumber and as a youth Mr. Bianco assisted him recalling they ripped out old boilers, removed exterior insulation from boilers, removed pipe covering, and repaired and replaced valves. (dep pg 80-86) In high school Mr. Bianco attended a vocational school where he was formally educated on welding and plumbing skills. (dep pg 156-161) He recalls tearing down old boilers and removing gaskets and packing, pipe insulation and exterior boiler insulation. (dep pg 170-173) Following his high school graduation in 1955, he entered the US Navy and spent 4 years as a shipfitter, fireman, pipefitter and plumber. (dep pg 231) He served aboard the Intrepid where he performed repairs to valves, plumbing fixtures, pumps, and the catapult. (dep pg 118-123) Insulated pipes ran throughout the ship and Mr. Bianco would remove and replace pipe covering once or twice a week. (dep pg 142) From 1957 until his discharge in 1959 Mr. Bianco worked in the repair and welding shop on decommissioned ships at a shipyard in Orange, Texas. (dep pg 143-145)

Following his military discharge in 1959, Mr. Bianco continued his trade working for a number of plumbing companies where he repeatedly described association with thermal system insulation materials. He removed old boilers, broke down pumps, and constructed fire boxes. Old boilers were covered with asbestos and Mr. Bianco report that is was "real dusty" during tear out activities. (dep pg 256-259) Over the years he broke pipe covering off pipes, dropping it to the floor and sweeping up the insulation and placing it in bag. (dep pg 281-284) At times he would cut the pipe insulation with a hacksaw. Mr. Bianco also described installing pipe covering. He mixed powdered cement with water and applied it to piping with his hands. (dep pg 301-303)

From 1970 to 1978, Mr. Bianco left the plumbing trade and worked as a truck driver and restaurant manager, without known association with asbestos materials. He returned to his trade in 1978, opening his own plumbing company. At that time in the late 1970s he only reports seeing asbestos intermittently, primarily on commercial sites. (dep pg 239, 352-354) He returned to the restaurant business from 1980 until 1993, drove a truck again from 1993 to 1998, installed radiant heat tubing for 2 years, then drove a school bus from 2002 to 2006. Mr. Bianco does not report any association with asbestos materials during these employments. (dep pg 373-376)

As to Weil-McLain, Mr. Bianco reports installing and removing Weil-McLain boilers while attending vocational school, working as a plumber, and in his own home. He identifies Weil-McLain boilers as jacketed and containing asbestos insulation beneath the jacket and asbestos rope packing between the sections. He identifies working on a number of boilers in addition to Weil-McLain including American Standard, Burnham, Peerless, Cleaver Brooks, HP Smith, AO Smith, Superior, and Erie. (dep pg 309-317) Mr. Bianco testified that Weil-McLain boilers were the least popular. (dep pg 259-260)

It is now claimed that Mr. Bianco developed mesothelioma, that asbestos exposure caused his mesothelioma, and that Westinghouse equipment contributed to risk of the mesothelioma.

That Mr. Bianco developed mesothelioma is correct. The diagnosis was reached based upon disease presentation and progression, and appropriate radiologic, pathologic, and immunohistochemical findings.

That the mesothelioma was caused by exposure to asbestos is also considered correct. Mr. Bianco had an occupational association with asbestos products for over 50 years as a plumber and pipefitter. Also, the 56 year interval between exposure initiation and diagnosis in this case is compatible with models of mesothelioma latency associated with occupational asbestos exposure. (Lanphear, Morgan, Peto, Roggli 2004a)

As to causal sources of exposure, Mr. Bianco had association with thermal system insulation including pipe covering and block. This occupational history of worklife association with insulation products defines

mesothelioma risk on the basis of:

1. Dose potential. Work with thermal system insulation as described in testimony can create airborne asbestos concentrations of both direct and indirect (bystander) significance. (Balzer, Harries 1971, Mangold 1970, Marr) Mr. Bianco:

   a. removed pipe covering aboard ships

   b. removed exterior insulation from old boilers

   c. swept up the insulation from the floor

   d. mixed powdered cement and applied it to piping

2. Amphibole fiber content. Thermal system insulation of the subject era typically contained amphibole (usually amosite) asbestos. (Fleisher and Drinker, Langer 1998, Marr, Rushworth) In terms of fiber type utilization, amosite (amphibole) exposures have been termed characteristic of association with insulation work in the United States. (Balzer and Cooper) Studies of lung tissue have also determined amosite to be the most common fiber type in cases of mesothelioma in this country (Dodson, Roggli 2002), and the amphibole amosite is considered responsible for essentially all of the mesothelioma cases in this country. (Roggli 2002)

   Scientifically compelling epidemiologic studies and literature reviews have determined amphibole fiber exposure to be the predominant cause of mesothelioma. (Acheson, Becklake, Case, Churg (1988, 1994, 2005), Craighead, Hodgson and Darnton, Hughes, Husain, Lippmann, McDonald (1997, 2002), Rees (1999a, b), Rodelsperger, Roggli (2002, 2004c), Srebro, Thomas, Yarborough) Specifically, the amphibole amosite is considered responsible for essentially all of the mesothelioma cases in this country. (Roggli 2002) And as stated in the current edition of a major textbook of pathology:

   > "...only amphibole exposure correlates with mesothelioma."
   >
   > *Husain, AN, Kumar V. The Lung. Ch 15, In: Robbins and Cotran Pathologic Basis of Disease, 7th Ed.; (Kuman, Abbas, Fausto), Elsevier Saunders: Philadelphia, 2007. pg 735.*

Also of significance in this case are trade, industry, shipyard setting, and clinicopathologic findings, factors that further evidence amphibole asbestos exposure and the consequential mesothelioma risk.

1. Trade. Mr. Bianco was a plumber and pipefitter. In studies that determined lung asbestos burden and elevated proportionate mortality ratios in occupational mesothelioma cases, plumber/pipefitter is ranked the first or predominant occupation associated with amphibole asbestos exposure and occupational mesothelioma risk. (Bang, Roggli 2002)

2. Industry. Mr. Bianco served in the US Navy, an industry with documented association with amphibole asbestos exposure and mesothelioma risk. (Bang, Roggli 2002)

3. Shipyard setting. While serving in the US Navy Mr. Bianco spent time at a shipyard. The shipyard setting has particular significance for amphibole exposure and mesothelioma risk. (Bang, Harries (1968, 1971), Kolonel, Marr, Roggli 2002, Sheers, Warnock)

4. Clinicopathologic findings. Radiologic evaluation described pleural plaques, a sensitive indicator of past asbestos exposure (ACR, Nishimura), without parenchymal fibrosis. This is an indication of

relatively low overall asbestos exposure and dose. Mesothelioma has been associated with exposure to amphibole asbestos at such dose levels, but with chrysotile either not at all or at extremely heavy cumulative dose, as encountered by miners and millers. (Becklake, Churg (1988, 1994), Hodgson, McDonald 1997, Roggli 2002, 2004b)

Therefore, on the basis of occupational history, appropriate latency, insulation product dose potential and amphibole content, trade, industry, shipyard setting, and clinicopathologic findings, the mesothelioma risk in this case is specifically attributed to amphibole bearing asbestos insulation materials occupationally encountered by Mr. Bianco. This is the only etiology to rationally consider, and fully explains his mesothelioma risk.

The assertion that Weil-McLain boiler equipment created, or contributed to, mesothelioma risk in this case is not correct.

As to Weil-McLain, there is an absence of external thermal insulation, an inherent lack of causal contribution to dose and risk, and an inability of the asbestos fiber type possibly used in boiler components to create mesothelioma risk.

1. An absence of external thermal insulation. It is my understanding that jacketed Weil-McLain boilers, as described in this case, were not externally insulated with asbestos material by design, and that Weil-McLain did not supply external thermal insulation that contained asbestos. Testimony in this case does not dispute this.

   Thus the risk created by dose potential and amphibole fiber type associated with thermal insulation could not have been introduced by Weil-McLain boilers.

2. Inherent lack of causal contribution to dose and risk: It is unlikely that Weil-McLain boiler equipment could have contributed to risk when dose generation potential is considered. Major factors to consider in dose generation are amount and accessibility of asbestos components, potential fiber release levels (exposure concentration) and time spent on maintenance (exposure duration). Dose is the product of intensity (concentration) and time (duration) expressed as fibers per cubic centimeter times years (f/cc-yrs) or fiber years. Dose determines risk.

   a. Meager use of asbestos materials in Weil-McLain boiler equipment: It is my understanding that Weil-McLain only utilized some chrysotile containing components including small diameter asbestos rope gasket between sections and on access and inspection covers. (Boelter & Yates reports)

   b. Intensity (concentration): Competent air sampling studies of work with Weil-McLain boiler equipment demonstrate that asbestos exposures, if even detectable, approximate typical background levels; well below both past and present OSHA permissible exposure levels. (Boelter & Yates reports, U.S. Department of Labor, 1972, 1984) Thus, intensity of exposure of any potential significance to airborne fibers from such component materials is lacking.

   c. Time (duration): Typically, any work with components including the rope gasket material in Weil-McLain boilers would be brief, intermittent and infrequent; minimizing the factor of duration and yet further reducing any potential exposure and risk.

   This combination of meager use of asbestos materials, insignificant fiber release, and brevity of infrequent association could not generate a dose of causal disease risk under typical association with Weil-McLain boiler equipment.

3. An inability of the asbestos fiber type possibly used in the components of Weil-McLain boiler equipment to create mesothelioma risk. Even if Mr. Bianco had some exposure to asbestos associated with Weil-McLain boiler equipment, there would still have been no risk of mesothelioma.

The term asbestos refers to a group of minerals classified as either serpentine or amphibole on the basis of mineralogical and chemical characteristics. Within the serpentine group there is one type, chrysotile; within the amphibole group there are five: amosite, crocidolite, tremolite, actinolite, and anthophyllite. (Campbell) Just as chrysotile is structurally distinct from the amphiboles (Langer 1989, 1991), these fiber types differ in mesothelioma risk potential.

The scientifically compelling epidemiologic studies and literature reviews that have determined amphibole fiber exposure to be the cause of mesothelioma have also virtually eliminated processed chrysotile as a mesothelioma risk factor. (Acheson, Becklake, Case, Churg (1988, 1994, 2005), Craighead, Hodgson and Damton, Lippmann, McDonald (1997, 2002), Rees (1999a,b) Rodelsperger, Roggli (2002, 2004b), Srebro, Thomas, Yarborough)

> "...review of 71 asbestos cohorts exposed to free asbestos fibers does not support the hypothesis that chrysotile, uncontaminated by amphibole substances, causes mesothelioma." (Yarborough)

It is my understanding the rope gasket and other components used in Weil-McLain boiler equipment would have contained processed (post milling) chrysotile, if any. (Boelter & Yates reports) Processed chrysotile is essentially free of amphiboles. (Boelter & Yates reports, Frank and Dodson) There is no evidence that amphibole fibers were present in Weil-McLain boiler equipment components. The mesothelioma risk associated with amphibole fiber exposure could not have existed with Weil-McLain boilers.

The combination of absence of external thermal insulation, inherent lack of dose potential, and chrysotile fiber type eliminates Weil-McLain boiler equipment from rational consideration as a contributor to risk of mesothelioma.

In summary it is my opinion to a high degree of medical and scientific certainty that:

1. Mr. Bianco developed malignant pleural mesothelioma.

2. The mesothelioma was caused by exposures to amphibole bearing asbestos insulation materials, occupationally encountered by Mr. Bianco. This is on the basis of occupational history, appropriate latency, insulation product dose potential and amphibole content, trade, industry, shipyard setting, and clinicopathologic findings.

   This is the only etiology that can be rationally considered, and fully explains the mesothelioma risk in this case.

3. Weil-McLain boiler equipment could not have contributed to risk considering:

   a. Absence of external thermal insulation.

   b. Inherent lack of contribution to dose and risk

   c. Inability of the fiber type chrysotile to create risk of mesothelioma.

4. Weil-McLain boiler equipment had no role in causation of, or contribution to, the mesothelioma in this case.

Between now and trial, I understand that I may be given an opportunity to review additional material relating to this case. Should any of this additional material alter my opinions; a supplemental report will be provided.

Sincerely,

Robert N. Sawyer, M.D.

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Boelter Associates

CONSULTING ENGINEERS AND SCIENTISTS

August 14, 2007

VIA FAX 312/645-7711

Mr. Cameron Turner
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Re: In re New York City Asbestos Litigation
Joseph P. Saccomano v. A.O. Smith Water Product Co., et al. (Weil-McLain)

Dear Mr. Turner:

This letter will serve as my report in the referenced matter. I have reviewed the deposition transcripts of Mr. Joseph Saccomano dated October 18, October 23, October 30, and November 8, 2006; Plaintiff's Response to Defendants Fourth Amended Standard Set of Interrogatories and Request for Production of Documents dated September 20, 2006, with attached Bankrupt Entities list and employer and jobsite history; Supplemental Summons dated September 16, 2006 with attached Verified Complaint; Social Security Records of Joseph Saccomano reflecting years 1953 through 2005; Military Records of Joseph Saccomano with Certification of Military Service; Local #28 Sheet Metal Workers Union records dated October 3, 2006; and Reports of Drs. Jacqueline Moline dated March 3, 2006, David Zhang dated March 27, 2006, and Michael Graham dated May 7, 2007.

Mr. Joseph Saccomano was born on March 17, 1937 in New York and died on November 28, 2006. The purpose of my review was to assess Mr. Saccomano's cumulative lifetime exposure dose in relation to the asbestos related disease being claimed with particular emphasis on exposures, if any, from products related to Weil-McLain.

Brief Work History

Mr. Saccomano graduated from Manhattan Aviation High School in 1955. He identified attending 8 semesters of various aircraft subjects including air frame shop. Either during or after high school in 1955, Mr. Saccomano worked for 3 to 4 months as a stock boy at Best Form Foundations, Long Island City, NY. From the 1st through 3rd Q of 1955, worked and in an unspecified position at Morris Designs Inc, Chappaqua, NY.

Mr. Saccomano reported serving from August or September 1955 through 1959 in the Air Force as an Airman 2nd Class and crew chief. Note: Social security records indicate that Mr. Saccomano was a member of the United States Air Force in 1957 (1st-2nd & 4th Q) and from 1958 through 1959 (2nd Q). Mr. Saccomano said he attended basic training and technical school in Texas for 6 months before being shipped to Etienne Air Force Base in France. He remained in France as an aircraft mechanic and crew chief for the last 3½ years of his service. Mr. Saccomano said during his service in France, he was assigned to temporary duty stations on two occasions, once in North Africa and once in Weisbaden, Germany. During these times he performed the same duties as he had at Etienne Air Force

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Base. He described working from 8 until 5 with a 1 hour lunch break although was on duty 7 days per week, he worked 5 days a week.

While working as an aircraft mechanic and crew chief at Etienne Air Force Base, Mr. Saccomano described his responsibility as making sure the aircraft was safe to fly. This entailed performing pre and post flight inspections, periodic inspections, fueling and general oversight. When refueling aircraft, he reported encountering raw oil fumes and another unspecified type of fumes when the engine fired. He recalled performing inspections on air craft after they landed which included checking brakes by using air to hose off the linings, checking the tires for cuts, checking the log book to assess any complaints made by the pilots regarding the aircraft and recording any work performed on the air craft in the log book. Mr. Saccomano claims to have changed brake pads and wheel bearings, re-packed wheel bearings and repaired electrical problems on the aircraft. He reported that A and P mechanics performed any specialized work needed on the aircraft and that all work on the aircraft was done outside on the flight line.

Mr. Saccomano identified working on North American F86 aircraft as well as T33's, which he recalled were trainers. He described working more on the T33 aircraft which he recalled was an F80 fighter with 2 seats, whereas the F86 was a tactical fighter with 1 seat. Mr. Saccomano recalled working on one single canopy, tandem seating T33 in France and North Africa and said this was a training aircraft assigned to him as his aircraft. This T33 was a low wing monoplane with a single wing adjoined to the fuselage and was powered by 1 centrifugal flow engine. The T33 had air intakes on both sides and the hydraulics of the landing gear came down on the bottom of the wing.

He described his duties on this T33 as involving the tires, brakes fuselage and generator of the aircraft. He reported inspecting the tires which included wiping them clean and checking them for cracks that could be filled with tarmac from the runway. If a crack was present, he had the tire changed. Mr. Saccomano recalled visually inspecting the aircraft's brakes, judging their wear by using a compressor powered by an APU unit to blow dust off of them. He reported opening and inspecting the access doors and panels of the fuselage as well as changing the batteries. Mr. Saccomano described handling the generator associated with this aircraft on one or two occasions.

During his service Mr. Saccomano observed other mechanics performing work similar to his own on various T33's on the flight deck as well as in the hangar. He recalled mechanics removing engines, tailpipes and wheels, repairing landing gear, working on control surfaces and performing general cleaning of the aircraft. On rare occasions Mr. Saccomano worked on a Canabera, a Canadian P59 aircraft. Sometimes he serviced these when they used Etienne as a temporary duty station.

Mr. Saccomano described working with jet engines as an aircraft mechanic and crew chief. These jet engines had combustion chambers lined with insulation materials which separated high temperature and low temperature areas. He recalled checking the fluid levels of the engines and inspecting ports for attachment. He said he possibly disturbed the insulation material on the engine.

Upon his return to civilian life, Mr. Saccomano worked as a collections agent, assistant manager and manager of the air conditioning department at Maintenance Co. Inc., Long Island City, NY. Although the social security records indicate that he was employed here from 1959 (4th Q) through 1960 (1st Q), Mr. Saccomano said he worked at Maintenance Co. for 2 years after his discharge from the Air Force. He described spending his first 2 to 3 months as a collections agent and then spent the next 7 months as an assistant manager of the air conditioning department. He was then promoted to manager. Mr. Saccomano recalled all of his work taking place in an office.

From 1960 through 1961 (according to social security records), Mr. Saccomano worked for Mainco Air Conditioning, Long Island City, NY. No further details were provided.

From 1961 (4th Q) through 1962 (1st Q), Mr. Saccomano worked as an expeditor for PEC Electronics Corporation a/k/a Polarad Electronics, Garden City, NY. He recalled PEC manufactured electronic equipment. He described his duties as answering phones, checking back orders and expediting parts for various assemblies.

In 1961, Mr. Saccomano began his 22 year career as a member of the International Association of Sheet Metal Workers Union Local #28. From the information provided, Mr. Saccomano was a 1st term apprentice from January 1, 1961 through December 31, 1965, a journeyman from January 1, 1966 through December 31, 1983 and a pensioner build beginning on January 1, 1984. Throughout his tenure Mr. Saccomano worked for various contractors at a myriad of job sites. As an apprentice, he occasionally worked with a journeyman, and also worked on his own; it depended on the particular job. As a journeyman, Mr. Saccomano reported working at various locations, including powerhouses, airport hangars, commercial buildings, ABC Studios, AT&T building and the Pan American building. He recalled working at LILCO and Consolidated Edison powerhouses, 4 to 5 hospitals, including St. Barnabas, New York University Hospital and St. Vincent's, and additional commercial buildings.

The social security records report that at various times from 1962 through 1963 (2nd Q), 1964-1965 (1st Q), 1966 (1st-3rd Q), 1967 (1st -3rd Q), 1972 (3rd- 4th Q) and 1973 (2nd Q) Mr. Saccomano worked for A. Munder & Son Inc., Long Island City, NY. However he reported working for A. Munder & Son Inc. for all 4 years of his apprenticeship (1961-1965) and a short period after during which time he worked at several locations. It was while working for A. Munder & Son Inc. he reported working at Phelps Dodge, Maspeth, Queens, NY on multiple occasions from 1961 through 1965 as an apprentice sheet metal worker and stated that each occasion was less than 6 months. He recalled replacing roofing, concrete asbestos sheeting and flashing, repairing holes in metal and cement roofing caused by smelting furnace explosions. He recalled drilling, sawing and screwing down an unspecified cement asbestos product. Mr. Saccomano said the metal flashing he worked with was used in place of caulking to make a watertight seal on a wall joint when a pipe or skylight was inserted through the roof. Mr. Saccomano described Phelps Dodge as a copper company, and the number of workers at this site from A. Munder & Son varied depending on a particular job. Mr. Saccomano estimated he spent 85% of his time

at Phelps Dodge working outdoors and 15% outdoors working indoors mostly on aluminum covered insulated pipe.

While employed by A. Munder & Son Inc., Mr. Saccomano reported working at the Lincoln Center on two occasions in the 1960's. He reported working on the exterior of the Center; he installed sheet metal lead in the front, barrel type entrance way and on the roof.

From 1963 (2nd Q) through 1983, Mr. Saccomano worked as a journeyman sheet metal worker at MSK Sheet Metal Corp., Long Island City, NY. No further details were provided.

Between 1965 and 1983, Mr. Saccomano reported working at various sites as a journeyman sheet metal worker for unnamed employers. During this period he worked at AT&T, Manhattan, NY (a couple months). He installed duct work on the ceiling and along the walls in an equipment/boiler room containing pumps, tanks and valves and the fan room. Mr. Saccomono described installing fans which came in sections and assembling housings for the fans, which were large enough to walk into, having 4 walls and a door. He said these fans also had filter racks and were used to pass air for ventilation, heating and pressurized air conditioning. Mr. Saccomano said there were other trades working around him in the boiler/equipment room, including boilermakers, pipefitters, plumbers, electricians and insulation workers and reported being in the vicinity during the assembly of boilers, tanks, pumps and valves. He described 3 vertical tanks measuring 3 to 4' in diameter and 8 to 9' tall which contained hot water, liquid or steam. Mr. Saccomano identified being adjacent to people applying and sanding joint compound and working with wallboard and drywall.

Mr. Saccomano reported working as a journeyman sheet metal worker at Pan Am for 6 to 12 months between 1965 and 1983 for an unknown employer where he described performing HVAC work. He does not recall the name of his employer, or whether all of this work was performed at the same time.

For a few months or more during the summer between 1966 and 1967 Mr. Saccomano recalled working as a sheet metal mechanic at the LILCO Powerhouse, Northport, NY for an unnamed employer. He described this powerhouse as a large facility. He recalled using sheet metal to cover materials insulators were applying to equipment to protect the risers. Mr. Saccomano reported working 5 days per week on different day shifts in most cases outdoors but sometimes inside. During his time at this site, there were insulators, plumbers, pipefitters and electricians working in the same vicinity. Mr. Saccomano claims he worked around trades working with pump packing, gaskets and fabric from wrapped insulation and mixing powdered insulation. Mr. Saccomano recalled there were LILCO personnel at the plant overseeing the work being performed.

In the 1970s Mr. Saccomano identified working at NYU Hospital, New York City, NY for an unnamed employer. Here he described performing HVAC work. The hospital was comprised of numerous buildings which were interconnected by a system of tunnels making it difficult for him to tell which building he worked in.

During unspecified years for an unnamed employer Mr. Saccomano reported working as a sheet metal mechanic at the Consolidated Edison Powerhouse, Ravenswood, NY. He did not recall what his specific duties were at this site but said most of the work he performed took place indoors although some might have been outdoors. Mr. Saccomano described this powerhouse as an older plant where asbestos material was used on the tanks and boilers. He would only have been involved with this equipment if it needed to be capped in metal. He said pipe fitters, plumbers and electricians worked with pumps and valves in his vicinity. He described his contact with Consolidated Edison employees as if a question arose regarding his work, a Consolidated Edison employee would speak to him.

Mr. Saccomano again worked at Consolidated Edison Powerhouse this time their Astoria, NY facility. This too was during an unspecified time period for an unnamed employer and does not recall his position. He described this powerhouse as one large structure comprised of a group of buildings. Because of the age of the structure, this project might have included renovation work, or new work in a small section. He recalled working in phases, where he went to the jobsite and completed one part of a job, then went back to complete another. Mr. Saccomano reported other trades working at this site, as well as tanks, pumps, boilers and valves being on site. He identified working at a 3rd Consolidated Edison Powerhouse (located in Manhattan); however, he did not provide any details.

During his sheetmetal career Mr. Saccomano reported working at both New York City airports. He recalled working for between 3 months and 1 ½ years at the Kennedy Airport, New York, NY for an unnamed employer. He recalled moving to another job and then returning. He described performing HVAC work in the equipment rooms of 2 different airline hangars in the International Arrivals building which he indicated had doors on each end which were large enough to fit a commercial aircraft. Mr. Saccomano reported hanging ducts and performing air balancing on one occasion when a new run was installed to prevent the entire building from overheating or cooling down. He believes he worked at LaGuardia Airport but could not recall any specifics.

Mr. Saccomano described performing renovation HVAC work in the equipment room, boiler room and some of the containment labs in the parts building at St. Barnabas Hospital located in either Bronx or Manhattan, NY. This was for an unnamed employer and lasted for between 3 and 6 months during an unspecified year. He recalled the hospital was comprised of many buildings and recalled working in a 5 story building which was part of a research center whose upper floors were used as labs for research. Mr. Saccomano recalled the containment labs of this building were on the 3rd or 4th floor and stated the equipment room where his HVAC work took place was filled with older equipment insulated with asbestos. He said other trades worked in the vicinity including electricians, steamfitters, plumbers, and masons and recalled trades worked with pumps and valves. Mr. Saccomano said his work at this hospital took place in phases, where he performed work, left and returned after other trades had completed their work.

For an unnamed employer and an undesignated years Mr. Saccomano worked as a sheetmetal worker at NYC hospitals. He recalled performing HVAC work at St. Vincent's Hospital, New York City, NY. This work included hanging duct work in equipment rooms

and performing fan work. At a VA hospital in the Bronx he described performing new and renovation HVAC work. He has a recollection of working at Sloan Kettering Hospital, Manhattan, NY and at a VA Hospital, Long Island, NY but does not recall any specifics.

At the World Trade Center Mr. Saccomano worked during renovation projects on one of the towers. Here he described performing HVAC work, hanging ducts and running risers for 1 to 2 months at a time. He recalled no further information.

In 1970 (3rd Q) through 1971 (2nd Q) and again from 1979 through 1983 Mr. Saccomano reportedly worked for JJ Flannery Inc., N. Caldwell, NJ. He explained it was not uncommon to go to work for one company for a few months and hire on with a new company with a better offer for a few months before moving again. He described JJ Flannery as a subcontractor in HVAC work and identified working at 2 sites for JJ Flannery. He recalled working as a journeyman sheet metal worker at the ABC Studios, Manhattan, NY, where he performed HVAC work on a renovation project. During this project, he recalled removing old duct work and installing new. This duct work was suspended from steel beams or concrete ceilings and was connected by special connectors which were screwed or bolted together. Mr. Saccomano explained his work here took place in the equipment room and hallways close to the equipment room and involved removing bolts, occasionally chopping concrete, and chipping fasteners out of concrete. Saccomano recalled other trades working in the same vicinity, including electricians, plumbers and steamfitters and identified various types of insulation being installed on ceilings, pipes and walls. For JJ Flannery Mr. Saccomano identified working as a sheet metal worker at the Trump Towers, Manhattan, NY performing HVAC work on a new construction project for 8 to 12 months in an unspecified year.

From the social security records, Mr. Saccomano was employed at Sobel & Kraus, Bronx, NY (1966 1st Q), Nicholson Munder Corp., Long Island City (1966 4th Q), New York City Transit Authority, New York, NY (1968 1st-3rd Q) and Brooke Sheet Metal Inc. Dip, Bronx, NY (1968 2nd Q-1969 3rd Q, 1970 1st Q), Essex Metal Works Inc., Elmwood Park, NJ (1971 2nd Q-1972 2nd Q), Jacobson & Co Inc, Elizabeth, NJ (1972 2nd Q), Bayside Roofing Co Inc, Long Island City, NY (1972 4th Q-1977), Bayside Roof Co Inc & Kensil-Hederman Co Inc PTR, Long Island City, NY (1972 4th Q-1973 3rd Q, 1974 1st-3rd Q, 1975 1st-2nd Q, 1976 4th Q), Sam Steinglass Inc, Long Island City, NY (1978-1979) and Phoenix Sheet Metal Corp, Garden City, NY (1979). No further information was provided.

From 1983 through 1996, Mr. Saccomano reported working as a building inspector and senior building inspector for the Town of Brookhaven, Patchogue, NY. Prior to working, he passed a test with the Civil Service Department. He described working as a building inspector for 2 years and then as a senior building inspector for the remainder of his time. He worked 5 days per week, 7 hours per day and recalled spending the first hour of the day in his office reviewing that day's work, answering phones, making appointments and checking codes. He then spent 6 hours per day inspecting sites with an estimated 1 hour of travel time in his car to and from each site. Mr. Saccomano described his duties for the Town of Brookhaven as inspecting residential buildings within the boundaries of Brookhaven. He spent most of his time in the villages of Shirley, Mastic, Sound Beach,

Rocky Point, North Bellport and Patchogue. He said the residential homes he inspected were between 1 and 5 bedrooms, measuring between 900' to 3500' square.

Mr. Saccomano described how upon arrival at homes, he performed an initial inspection, estimated the extent of visible damage based on his experience and returned to the site during construction to ensure that the damage or repairs needed were completed and there was no visible underlying structural damage. Mr. Saccomano said his work at each jobsite varied and might have included framing inspections, insulation inspections, boiler removal and HVAC, plumbing, siding, roofing, flooring, sheetrock or drywall work. He recalled being present during the replacement of boilers, furnaces and water heaters. As a building inspector, he did not perform any hands on work, but inspected the work of others for code compliance, quality of material and workmanship and proper installation. In this position, Mr. Saccomano worked in the vicinity of tradesmen, including electricians, plumbers, steamfitters and boiler makers performing their work, possibly while he was their inspecting a site.

After becoming senior building inspector, Mr. Saccomano reportedly spent more time in the office and oversaw 2 other building inspectors. He said he was in a general inspector grade for 2 years before becoming eligible for the promotion to senior building inspector. Mr. Saccomano reported attending 11 or 12 classes put on by the Codes Division of the State of New York. He could keep up with code changes and maintain his certification.

From 1961 through 1983, Mr. Saccomano was a member of the International Association of Sheet Metal Workers Union Local #28. He reported going before a board to apply for an apprenticeship and being recommended by two other union members. Mr. Saccomano described working as an apprentice from 1961 through 1965 a journeyman from 1965 through the time of his retirement in April of 1983. As an apprentice, he sometimes worked with a journeyman and other times worked alone depending on a particular job. Mr. Saccomano was a member of the New York States employees union from 1983 through 1996 while employed as a building inspector for the Town of Brookhaven.

Medical History

Mr. Saccomano was diagnosed with lung cancer on June 5, 2006 per Dr. Theodoris. The report of Dr. Jacqueline Moline concludes Mr. Saccomano suffered and died from malignant mesothelioma of the right lung that invaded into his ribs and collarbone. Dr. Moline concluded Mr. Saccomano had pathological and radiological evidence of asbestosis. Dr. Zhang reported findings of lung fibrosis, consistent with asbestosis was documented by a B-reader on an X-Ray of Mr. Saccomano's chest on 5/12/03. A CT scan of his lungs on 7/8/04 and 9/2/04 revealed severe bullous emphysema and minor pleural thickening in the lower lobes. Mr. Saccomano reported being diagnosed with asbestosis after a May 12, 2003 chest x-ray/B-reader referred to him by his union. The Plaintiff claims this disease resulted from exposure to asbestos. Dr. Michael Graham disagrees and diagnosed Mr. Saccomano with poorly differentiated non-small cell malignant tumor. No asbestos bodies were seen by Dr. Graham in the lung tissue. Dr. Graham reports that the presentation of

the tumor is a dominant lung mass and is characteristic of lung cancer and not of malignant mesothelioma.

Mr. Saccomano's medical history is significant for tonsil removal prior to his service in the US Air Force, sprained ankle during his time in the Air Force, kidney stones of a 3 year period, sleep apnea and eye injury resulting in glaucoma at an unspecified time. From 1996 through the time of his diagnosis, he underwent hospitalization for stenosis of the spine, resulting in the implantation of 2 rods in his back and the removal of half his vertebrae; carpal tunnel in right hand, removal of colon polyp and removal enlarged, benign portion of his prostate. Subsequent to being told he had asbestosis, he was diagnosed with emphysema per CT scans taken on July 8, 2004 and September 2, 2004. Dr. Jacqueline Moline reports Mr. Saccomano has having a medical history including hypertension, allergies, sleep apnea, COPD, glaucoma, diverticulosis and rectal polyps and a surgical history significant vasectomy, transurethral resection of prostate, carpal tunnel release and cardiac catheterization on March 30, 2006 which revealed non-obstructive coronary artery disease, severe left ventricular systolic and diastolic dysfunction, mild congestive heart failure with left ventricular dilation and mild pulmonary hypertension.

Mr. Saccomano suffered a work related back injury in 1982 causing him to miss 6 weeks of work due to compressed disks. He subsequently filed suit, but he does not recall the disposition of this case. Mr. Saccomano identified two occasions on which he tore cartilage in his knees and he filed suit for both incidents.

Mr. Saccomano has a family medical history which includes his father's death at age 77 due to liver cancer and emphysema and his mother's death at ago 90 due to a heart attack.

Mr. Saccomano smoked 1.5 ppd of filtered Parliament Lights and/or Benson and Hedges Ultra Lights from 1955 through 1978. This equals an about 35 pack year history. Mr. Saccomano's father smoked about 2 ppd of Camel cigarettes, however reported that his father was not home much when he was growing up.

Asbestos Exposure History

Mr. Joseph Saccomano likely had some exposure to airborne asbestos. He claims to have worked with and around the following:

a. *Boilers*: (A.O. Smith, American Standard, Columbia, Weil-McLain, Repco, Dunkirk, Utica) described being present at locations while other trades assembled, installed, removed, replaced and worked on boilers. The work included lining the boiler with block insulation, packing valves and working with gaskets on the boilers. Recalled instances when boilers were in place when he arrived on a job site, but not completed. Reported that the removal of boilers involved the boilers themselves as well as pipes running to and from the boiler, the cabinet around the boilers, insulation on the boilers and associated components which were either welded on or connected by threaded pipe and had to be cut off, disassembled and removed.

During boiler removal, the pipes were removed and closed off so nothing would leak before the boiler was broken down and removed. Stated he was present to supervise the removal of boilers and estimated being in the vicinity for between 30 minutes and an entire day during the removal. Identified boilers as being 6 to 8' in diameter and 20' long and recalled working in rooms where there might have been more than one boiler. Described package boilers ranging from 135,000 to 250,000 BTUs with rectangular shapes. Smaller package boilers measured 3' high while larger ones measured 5' high, 3½' to 4' wide and 3' to 6' deep. Recalled package boilers had gray insulation under the tan jackets. Reported that jackets and cabinets of boilers were removed prior to the disassembly of boilers, but does not recall whether the sections were taken apart. Identified package cast iron, oil fired boilers and estimated being between 2 and 6' from the disassembly of these boilers. Described inspecting boilers for code compliance that were between 30 and 45 years old, rotted out, non-functioning, cracked or had operational defects such as gas leaks. Indicated that licensed contractors removed boilers from residences, and stated he was on site during removal to ensure that a city code applying to boiler removal was followed. (AT&T Building, LILCO Powerhouse, Town of Brookhaven)

b. *Brakes*: (Bendix) identified changing disc brake pads and using a hose to check brake linings on aircraft. Described brake linings as a coating over the brake material, brake pads as a composition of brake material and indicated that these components were not used together. Reported performing visual inspection of brakes on T33 aircraft, using a compressor powered by an APU unit to blow dark colored dust off the tires and judge the wear of the brakes and indicated that he touched brake pads during inspection. Indicated that disk brakes sat behind the caliper which was exposed. With the tire on he could see part of the brake assembly. After visual inspection he stuck safety pins with flags in the brakes to highlight areas for whoever was to work on them. Identified performing post flight inspections of T33 aircraft and again described using an air compressor to blow out dust prior to visual inspection. Stated A and P mechanics performed brake work on T33 air craft in a hangar and identifies possibly being in the hangar during this time to answer questions regarding his log book. Recalled F86 aircraft had brake pads and a disk brake assembly made of a composition material containing asbestos. Reported performing brake work outside. (U.S. Air Force)
c. *Ceiling Tiles*: (Johns Manville) identifies fire retardant acoustical ceiling tile. (General)
d. *Cement*: (Mansville, Georgia Pacific) described covering insulated pipe with thin aluminum and working next to workers mixing insulation on a pipe trowel before he covered this insulation in a sheet metal casing and banded it. Recalled that insulation was a fibrous mix which was mixed with water and other substances and troweled onto pipes. Reported that this product came in a can with a manufacturer name on it. Identified cement insulation used to seal joints, which was mixed with water to the consistency of a malleable putty like consistency that could be formed when wet. Recalled observing insulators insulating steam and hot water pipes with a composition material made of powder mixed with water and other chemicals. (A. Munder & Son Inc., Phelps Dodge, LILCO Powerhouse)

e. *Cloth*: identified working around trades wrapping high temperature equipment in fabric insulation. The insulation was woven, grayish or tan in color and came on a roll. Recalled this material was cut to fit certain pieces of equipment, and was used on pumps, tanks and boilers. Stated this material frayed with cut. (LILCO Powerhouse, Consolidated Edison Powerhouses)

f. *Concrete*: described drilling holes, sawing and screwing down a preformed cement asbestos product. Identifies performing duct work which involved occasionally chopping concrete, chipping fasteners out of concrete and chipping fasteners off of beams. (A. Munder & Son Inc., Phelps Dodge, JJ Flannery Inc., ABC Studios)

g. *Drywall*: recalled working in a building with portions of the wall built from light steel framing, fire rated sheet rock and joint compound used to seal drywall. Worked in the vicinity of people working with drywall. Described being adjacent to people working with drywall, including carpenters, sheetrockers, spacklers and insulators in a boiler/equipment room. Identified drywall that had blue labels and was stuck together. (AT&T Building)

h. *Engines*: identified working with jet engines which had combustion chambers lined with insulation materials. Described checking the fluid levels of engines and inspecting ports for attachments, possibly disturbing the insulation on the engine. Recalled observing other mechanics in the hangar changing the engine on T33 aircraft on more than one occasion. They separated the aircraft, used an engine lift, released the main support and lifted the engine out after separating the tailpipe. (US Air Force)

i. *Flooring Material*: (Kentile, Congoleum, GAF, Armstrong) described being present during the removal and installation of flooring tiles during residential inspections. Indicated workers scraped up old asbestos containing floor tile which was glued to the floor using scrapers, brooms, putty knives and in some cases hammers to break up and remove the tile. With regard to the removal of floor tiles, reported that his job was to ensure that they were completely removed along with the adhesive under them. Identified tiles removed measuring 9"x9" and tiles installed being larger and specified as vinyl composition by the standards specification booklet. (Town of Brookhaven)

j. *Furnaces*: (Bryant, Carrier, Singer) recalled being present at various, mostly residential jobsites when furnaces were being removed and replaced. Identified blue, gray and tannish furnaces and furnaces with company logos on them which were forced air, consisting of a fan in the fan section, provided heat and were either gas or oil fired. Recalled some furnaces as free standing, having ducts with return and supply air pockets, being physically taller than wide and deep. They had an average size between 125,000 and 150,000 BTUs. Some furnaces were located in the cellars or basements of homes with a water heater, washer and dryer or in cases of slab houses, in a closet. Recalled gray or tannish insulation material between the unit and the sheet metal jacket. Reported observing the removal process of furnaces, which involved disconnecting fuel lines, from the furnace and seal to prevent leaks, disassembling the supply and return ducts, removing plenum, fan assembly and controls and breaking down the sections of the boiler. During the removal process described workers using pliers to cut wires, wrenches to take apart bolts and nuts and screwdrivers to remove screws allowing them to take off

the cabinets and disassemble the furnace into sections. Removal of furnaces was performed by 1 or 2 specific tradesmen, and he was 5' away from this work. (Town of Brookhaven)

k. *Gaskets*: (Garlock) observed tradesmen using gray fabric gaskets on flanges numerous times as well as tradesmen performing gasket work associated with a boiler. Identified pre-formed, gray, fabric flange gaskets used between flanged to seal against temperature and pressure. (AT&T Building, LILCO Powerhouse)

l. *Generators*: worked with the generator on a T33 when it would motorize and flashing the generator to energize it back to a generator mode. (US Air Force)

m. *Insulation*: identified insulation materials on jet engine combustion chambers which separated high and low temperature areas. Recalled scraping insulation from beams to install clips for duct work hangars and scraping insulation off of beams or pipes to remove old duct work. Identified performing HVAC work in an equipment room filled with older equipment insulated with asbestos as well as covering insulated equipment such as pumps, pipes and containment vessels with light sheet metal protection. Described insulation on boilers around the cabinet and, between the jacket and the boiler, and tan or gray insulation around the chamber of furnaces between the sheet metal jacket and the unit itself. Recalled insulation on piping that was removed from boilers. Reported working around others installing various types of insulation materials on ceilings, pipes and walls. In some cases these materials were used as sound proofing to keep equipment noise down. (US Air Force, A Munder & Son Inc, Phelps Dodge, JJ Flannery Inc, ABC Studios, AT&T Building, LILCO Powerhouse, St. Barnabas Hospital, Town of Brookhaven)

n. *Joint Compound*: (USG) described working adjacent to carpenters sheet rock workers, spacklers and insulators performing work involving joint compound on drywall. (AT&T Building)

o. *Packing*: (Garlock, 3M, John Mansville) identified packing used to seal valves. Associates packing with pump and valve work. Recalled seeing packing loose, not in a box and gray. Described working in the vicinity of trades working with gray or tan rope packing packaged in clear cellophane wrapping which possibly came in brown cardboard boxes. In some cases the cellophane was marked with a series of numbers. Recalled some packing had a thick consistency. (AT&T Building, LILCO Powerhouse)

p. *Pumps*: (Ingersoll Rand, Bell & Gossett, Taco, Crane) worked in the vicinity of people working with pumps, in some cases in equipment rooms. He described pumps as round, large and big and believes they were used in high temperature applications. Recalled observing people installing, removing and otherwise working on hot water circulation pumps associated with hot water boilers. They were green, had motors and varied in size according to where they were installed. Identified pumps that were red, round, large, electrically powered, located in equipment rooms and used in high temperature applications. Recalled seeing steam vapor coming off the liquid from pumps which he believed were high temperature. (AT&T Building, Consolidated Edison Powerhouses, St. Barnabas Hospital)

q. *Refractory*: worked in a close proximity to trades lining a large boiler with white, light weight blocks. Trades cut these blocks while he was present. (AT&T Building)

r. *Roofing Materials*: described working outside on top of a roof repairing holes in metal and cement roofing caused by explosions from a smelting furnace. Was present during the removal and installation of roofing products supplied by the general contractor. When inspecting the jobs he was either on the roof, on a ladder overlooking the work or on higher ground in the backyard. Recalled roofing materials were generally replaced due to deterioration, dry rotting or water damage. (A Munder & Son Inc., Phelps Dodge, Town of Brookhaven)

s. *Siding/Shingles*: (Arrow, Triple A, CertainTeed, GAF) present during inspections involving the removal and installation of siding shingles which contained asbestos. Explained that siding shingles were removed because of water damage and deterioration to the sheathing, resulting in structural damage. (Town of Brookhaven)

t. *Valves*: (Crane) identified large valves in powerhouses, which he estimated to be larger than 6". Recalled working in equipment rooms in the same vicinity with other trades working with large valves located on the floor. Recalled trades installing flanges on valves. (General, AT&T Building, Consolidated Edison Powerhouses, St. Barnabas Hospital)

u. *Water Heaters*: (Bock) described being present while furnaces were removed and replaced at various job sites. (Town of Brookhaven)

Factors to be Considered in Risk Assessment

Lung cancer

The epidemiological studies that have been performed that have established an association between asbestos related malignancies, asbestos related diseases, asbestosis and asbestos have established that the principle factor is dose (intensity times duration of exposure). Most individuals who develop asbestos related diseases and/or asbestosis are exposed to very high doses in excess of 25 f-yr/cc. According to the same and similar studies, lung cancer may also be attributable to cumulative life time doses which exceed 25-fyr/cc. Intense exposures have been linked to lung cancer over less time.[1,2,3]

Fiber differences should be factored into the dose/response relationship of asbestos exposure and lung cancer. Literature indicates a 6 to 1.5 ratio of lung cancer risk of those exposed to amphiboles to those exposed to chrysotile.[4,5,6] One study found no measurable

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1 Report of the Royal Commission on Matters of Health and Safety Arising from the use of Asbestos in Ontario, pp280-281 (1984). (Citing Dr. Hans Weill, Mr. Julian Peto, Mr. G. Berry and Dr. J.C. McDonald).

2 Churg, A.: "Neoplastic Disease Caused by Asbestos", Pathology of Occupational Lung Disease, 2nd ed., Williams & Wilkins, pp313,341-342,348 (1998).

3 Consensus Report: Asbestos, Asbestosis, and Cancer; the Helsinki Criteria for Diagnosis and Attribution, *Scand J Work Environ Health*, 23:311-316 (1997).

4 McDonald, J.C.: "Cancer Risks due to Asbestos and Man-Made Fibers", *Recent Results Cancer Res*, 120:122-133 (1990).

5 McDonald, J.C.: "Asbestos and Lung Cancer: Has the Case Been Proven?", *Chest*, 78:374-376 (1980).

excess risk of death due to lung cancer among women in two chrysotile asbestos mining regions. In this care the EPA's model overestimated the risk of lung cancer.[7]

Mesothelioma

The epidemiological studies that have been performed that have established an association between mesothelioma and asbestos have also established that there are four (4) significant factors to be considered in the assessment of risk of mesothelioma. These four (4) factors are: latency (time between exposure and disease); fiber type (chrysotile or amphibole forms including crocidolite, amosite and tremolite); dose (intensity times duration of exposure); and personal susceptibility.

The latency factor is important in that the time between exposure and diagnosis of disease should be taken to the third or fourth power in calculating a particular exposure risk.[8]

The type of fiber is also important. It has been estimated that the exposure specific risk of mesothelioma from the three principal commercial types of asbestos is broadly in the ratio of 1:100:500 for chrysotile, amosite, and crocidolite respectively.[9] Cases of mesothelioma in individuals exposed only to chrysotile are extremely rare. Most such cases have been attributed to amphibole - tremolite - contamination of chrysotile.[10] Put somewhat differently, mesothelioma has been associated with exposure to amphibole asbestos - amosite, crocidolite, and tremolite - at low exposure doses, but with chrysotile either not at all or at extremely heavy doses. Current scientific consensus would indicate the amphibole forms are the causative agents in an asbestos related mesothelioma.[11]

As with all occupational exposure related diseases, there is a direct relationship between the dose and risk of contracting mesothelioma. That is, the number of cases among workers in heavily exposed trades, particularly those that include amphibole exposure (i.e. career insulators) is greater than those with the same type of fiber exposures but at lower doses (i.e. members of the construction trades). The lowest asbestos exposure doses that

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6 Churg, A.: "Neoplastic Disease Caused by Asbestos", Pathology of Occupational Lung Disease, 2nd ed., Williams & Wilkins, pp340-342, 348 (1998).

7 Camus, M., Siemiatycki, Case, Desy, Richardson, Campbell: "Risk of Mesothelioma Among Women Living Near Chrysotile Mines Versus US EPA Asbestos Risk Model: Preliminary Findings", *Ann Occup Hyg*, 46(S1):95-98 (2002).

8 Peto, J., Seidman, Selikoff,: Mesothelioma Mortality in Asbestos Workers: Implications for Models of Carcinogens and Risk Assessment, *Brit J Canc* 45:124-135 (1982).

9 Hodgson, J.T. and Darnton, A.: The Quantitative Risks of Mesothelioma and Lung Cancer in Relation to Asbestos Exposure, *Ann Occup Hyg* 44(8): 565-601 (2000).

10 Churg, A.: Chrysotile, Tremolite, and Malignant Mesothelioma in Man, *Chest*, 93(3):621-628 (1988).

11 Report on the Peer Consultation Workshop to Discuss a Proposed Protocol to Assess Asbestos-Related Risk; *US Environmental Protection Agency, Office of Solid Waste and Emergency Response;* EPA 68-C-98-148 (2003).

have been associated with mesothelioma in epidemiological studies are in the order of 4 to 5 fiber yr/cc.[12,13,14] Most individuals who develop asbestos-related mesothelioma are exposed to significantly higher doses.

Analysis of Exposure

Total exposures

Mr. Joseph Saccomano was likely exposed to some amount of airborne asbestos for varying lengths of time. Friable amphibole-containing insulation (amosite and/or crocidolite) materials would have been the likely source of Mr. Saccomano's most significant exposures to airborne asbestos fibers.[15,16,17,18,19,20,21,22,23,24,25] Such materials

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12 Ilgren, E. B. and K. Browne: Asbestos-Related Mesothelioma: Evidence for a Threshold in Animals and Humans, *Reg Tox Pharm* 13:116-132 (1991).

13 Sciences International, Inc.: *Toxicological Profile for Asbestos.* Agency for Toxic Substances and Disease Registry; Public Health Service, US Department of Health and Human Services; Atlanta, GA (August 1995).

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23 Nicholson, W.J., Perkel, G., Selikoff, I.J.: Occupational Exposure to Asbestos: Population at Risk and Projected Mortality - 1980-2030. *Am J Ind Med* 3(3):259-311 (1982).

were described by Mr. Saccomano during his sheetmetal work and are reported in the literature including studies performed in cooperation with Local 28.[26,27,28,29,30,31] These insulation materials commonly contained some percentage of amphibole (amosite or crocidolite) forms of asbestos.[32,33,34]

General Testimony Regarding Boilers

During his 22 years (1961 through 1983) as a sheet metal worker with Local 28, Mr. Joseph Saccomano generally described being present at locations while other trades assembled and otherwise worked on boilers. He said this work included lining the boiler with block insulation, packing valves and working with gaskets. Mr. Saccomano identified boilers as being 6 to 8' in diameter and 20' long and recalled working in some rooms where there might have been more than one boiler. Mr. Saccomano reported instances when boilers were in place when he arrived on a job site, but not completed.

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25 Mangold C., Clark K., Madl A., Paustenbach D: An Exposure Study of Bystanders and Workers During the Installation and Removal of Asbestos Gaskets and Packing, *J. Occ and Env Hygiene*. 3: 87-98 (2006)

26 Personal and professional experience of Mr. Boelter based on historical knowledge, onsite inspections, and hundreds of bulk samples collected.

27 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings (Blue Book), *US Environmental Protection Agency*, EPA 560/5-83-002 (1983).

28 Asbestos in Buildings: A National Survey of Asbestos-Containing Friable Materials. (Red Book), *US Environmental Protection Agency*, EPA 560/5-84-006 (1984).

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31 Lundy, P., Barer, M.: Asbestos-Containing Materials in New York City Buildings., *Environ Res* 58(1):15-24 (1992).

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33 USPHS Survey at the Johns-Manville Asbestos Textile Plant, Manville, NJ dated January 1965, report #IW8-32.22b.

34 Results of USPHS Survey, Johns-Manville, Manville, NJ dated April 1971, report #IWS-32.22d

During his 13 years (1983 through 1996) as a building inspector for the town of Brookhaven, Mr. Joseph Saccomano generally described being present at locations while other trades assembled, installed, removed and replaced boilers. He described inspecting boilers for code compliance that were between 30 and 45 years old, rotted out, non-functioning, cracked or had operational defects such as gas leaks. He indicated that licensed contractors removed boilers from residences. He claims he was on site during removal to ensure that a city code applying to boiler removal was followed. He reported that the removal of boilers involved removing the boilers themselves as well as pipes running to and from the boiler, the cabinet around the boilers, insulation on the boilers and associated components which were welded on or connected by threaded pipe and had to be cut off, disassembled and removed. Mr. Saccomano said during boiler removal, the pipes were removed and closed off so nothing would leak before the boiler was broken down and removed. He said he was present to supervise the removal of boilers and estimated being in the vicinity of removal for between 30 minutes and an entire day.

Mr. Saccomano described package boilers ranging from 135,000 to 250,000 BTUs with rectangular shapes. Smaller package boilers measured 3' high while larger ones measured 5' high, 3½' to 4' wide and 3' to 6' deep. Mr. Saccomano recalled package boilers had gray insulation under the tan jackets. He reported that jackets and cabinets of package boilers were removed prior to the disassembly of package boilers. He further identified package cast iron, oil fired boilers and estimated being between 2' and 6' from the disassembly of these boilers.

Exposures to Weil-McLain Products

Many of the other exposures which Mr. Joseph Saccomano may have received would have been considerably less significant than those related to friable, amphibole (amosite or crocidolite) asbestos containing insulating materials and their residuals.

While employed as a building inspector for the Town of Brookhaven, Mr. Saccomano described being present during the removal of boilers including those he believed as manufactured by Weil-McLain. He supervised the dismantling of various boilers by licensed contractors and estimated that he may be present for 30 minutes to all day. He reported that when he observed Weil-McLain boilers being removed, piping had to be cut off. He explained that some of the Weil-McLain boilers were package, but some were disassembled upon removal and explained that during removal the cabinets and jackets were removed, but he does not recall if the sections were taken apart. Mr. Saccomano described the Weil-McLain boilers as insulated with asbestos which he recalled was gray or tan and located between the jacket and the boiler itself. He identified the Weil-McLain boilers as package units ranging between 135,000 and 250,000 BTUs. He said these boilers had a rectangular shape and were jacketed. Smaller Weil-McLain boilers were 3' high while the larger measured 5' high, 3½' to 4' wide and between 3' and 6' deep. Mr. Saccomano said he was not present for the complete removal of a Weil-McLain boiler, but was present for the removal of different parts at different times.

The descriptions of boilers which Mr. Saccomano claims to have observed do not match Weil-McLain products. Weil-McLain did not supply any asbestos-containing thermal insulation products with their boilers. Weil-McLain manufactured boilers that were typically residential or small commercial boilers and the only potential material which contained asbestos (chrysotile) involving a product provided by Weil-McLain would have related to fluid sealing devices or systems sealed interior to the boiler.

From an industrial hygiene perspective, fluid sealing devices or systems (i.e. gasket, packing, rope and seals) installation/removal in general is not considered to be a hazardous activity and is not considered to be unreasonably dangerous. Even if Mr. Joseph Saccomano worked around others who were working with asbestos-containing fluid sealing devices, this would have resulted in an occasional activity at best and would have been bystander and would have been non-detectable to very low level exposure.[35,36] Therefore, his exposure to Weil-McLain products would have been non-detectable or deminimis at best and would not have been substantial.

Conclusions

Based on the above considerations from the vantage point as a certified industrial hygienist and licensed professional engineer, I conclude to a reasonable degree of scientific certainty that:

1. It is likely that Mr. Joseph Saccomano had some exposure to airborne asbestos fibers from friable insulation products some of which likely also contained amphibole (amosite or crocidolite); and
2. From a review of the testimony and information provided, it is unlikely that Mr. Joseph Saccomano had a cumulative lifetime dose greater than 25 fiber years; and
3. The exposure category most likely to have significantly increased Mr. Saccomano's risk would have been friable amphibole (amosite or crocidolite) asbestos-containing insulation products such as those described by Mr. Saccomano that he encountered early in his sheetmetal worker career; and
4. If in fact Mr. Saccomano's disease is medically determined to be asbestos related, it is most likely exposures related to friable amphibole asbestos-containing insulation products, that increased his risk related to the development of such a disease; and
5. Smoking is the leading cause of lung cancer[37]; and
6. From the mid-1970s to present, OSHA, EPA, and New York City and State have been enforcing increasingly stringent regulations regarding asbestos. As a building

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35 Studies performed by F. Boelter of fluid sealing systems involving Weil-McLain boilers.

36 Boelter, F.W., Crawford, Podraza: Airborne Fiber Exposure Assessment of Dry Asbestos-Containing Gaskets and Packings Found in Intact Industrial and Maritime Fittings, *AIHA Journal*, 63(6):732-740 (2002).

37 American Lung Association, http://www.lungusa.org/,(2003)

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inspector, Mr. Saccomano and licensed contractors which he claims to have supervised would have been required to follow City, State and Federal regulations and codes related to removal or disturbance of asbestos containing products and equipment; and

7. Mr. Saccomano never worked on, removed, or installed a Weil-McLain product. It is also unlikely he ever observed anyone working on a Weil-McLain product; and
8. Exposure (dose) from fluid sealing devices or systems would have been statistically insignificant and could not have significantly increased a risk for Mr. Saccomano; and
9. Weil-McLain products could not have been a significant factor in any exposure Mr. Joseph Saccomano may have had through his lifetime.

Please let me know if you have any questions.

Very truly yours,

Frederick W. Boelter, CIH, PE